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KED & ASSOCIATES, LLP
P.O. Box 221200
Chantilly, VA 20153-1200

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LEE, SIU M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/696,997	LEE, JAE-CHEOL
	Examiner	Art Unit
	SIU M. LEE	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-10 and 12-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-10 and 12-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-6, 8-10, 12-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6, 8-10, 12-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The present invention describes an initial synchronization searching in mobile communication systems. The method comprises a method of estimating a candidate region in a power distribution of a signal outputted from the adder 50 as shown in figure 4A and 4B. From figure 4A and 4B, it is obvious the power distribution need to have 6400 chips (1 frame) value in order to perform the estimation.

However, paragraph 0039 teaches the method of accumulating I and Q value in the accumulation buffer 10 and 20 by the equation $\Sigma I(t \% L) = \Sigma Q(t \% L)$ (equation 1),

paragraph 0040 further discloses that $\Sigma I(t \% L)$ can be expressed by $I(1 \% 6400) + I(2 \% 6400) + I(3 \% 6400) + \ldots + I(n \% 6400)$. It seems like that the accumulated buffer has summed all 6400 chip value to a single value.

Paragraph 0042 further teaches that adder 50 adds absolute values outputted from the absolute value calculators 30 and 40, the addition result can be expressed by the following equation: $|\Sigma I(t \% L)| + |\Sigma Q(t \% L)|$; (equation 2 in paragraph 0042). From this equation, it is clear that the output of the adder 50 will be a single value. Therefore, it is not possible for the estimation step as shown in figure 4A and 4B to be performed.

Since the detail of the adding step is not in the claim, the following is the art rejection for claims 1-6, 8-10, 12-30.

Claim Objections

4. Claims 1 are objected to because of the following informalities:

(1) Regarding claim 1:

Line 6 recites “obtaining a correlation value of each candidate region”. There is no antecedent basis for “candidate region".

Examiner interpret the above limitation means obtaining a correlation value on more than one candidate region. However, line 3 recites "selecting a region for an initial synchronization from an input signal". The examiner interpret the limitation means selection one region for an initial synchronization from an input signal. If the selected region is the candidate region, there is a mismatch of the number of regions.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 1, 21, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561) in view of Van Der Wal et al. (US 2005/0053048 A1).

(1) Regarding claim 1:

Naden et al. discloses a method to obtain synchronization comprising:

obtaining a correlation value of each candidate region (an acquisition mechanism configured to correlate said first sample with the pseudorandom sequence, column 116, lines 21-22), and

judging that synchronization has been obtained in a corresponding candidate region if a specific correlation value is greater than a threshold value (determine whether a correlation value exceeds a predetermined threshold, indicative of coarse synchronization being achieved, column 116, lines 23-29).

Naden et al. fails to disclose selecting a region for an initial synchronization from an input signal; and obtaining an initial synchronization by correlating the selected region and a synchronous code.

However, Van Der Wal et al. (US 2005/0053048 A1) discloses a method for synchronizing a mobile equipment by scanning a base radio signal during at least one

frame for detecting a signal portion with predetermined characteristics and deriving time information associated with the CDMA system from the signal portion and start synchronization step of the mobile equipment using the timing information (claim 1, lines 11-18).

It is desirable to select a region for an initial synchronization from an input signal and obtaining an initial synchronization by correlating the selected region and a synchronous code because it provides a more efficient synchronization method (paragraph 0003). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of Van Der Wal et al. with the method of Naden et al. to improve the efficiency.

(2) Regarding claim 21:

Naden et al. discloses a method to determine the initial synchronization by:

obtaining a correlation value of the input signal and the synchronous code (an acquisition mechanism configured to correlate said first sample with the pseudorandom sequence, column 116, lines 21-22), and

judging that synchronization has been obtained at a corresponding candidate region if a specific correlation value is greater than a threshold value (determine whether a correlation value exceeds a predetermined threshold, indicative of coarse synchronization being achieved, column 116, lines 23-29).

Naden et al. fails to disclose an estimator configured to select a region from an input signal, wherein the input signal comprises a combined value of I and Q signals and a synchronizer configured to determine an initial synchronization from the region.

However, Van Der Wal et al. discloses an estimator (processing means 7 in figure 1, paragraph 0029, lines 8-11) configured to select a region from an input signal, wherein the input signal comprises a combined value of I and Q signals (the describe system is a TDD-CDMA, therefore, it is inherent that the input signal comprises a combined value of I and Q signals) and a synchronizer (processing means 7 in figure 1, paragraph 0029, lines 8-11) configured to determine an initial synchronization from the region (refer to figure 5, a number of peaks 23 occur, these peaks have certain characteristic which make these peaks easy to detect, the mobile station may be provide with special circuitry to detect these peaks , once these peaks are detected, the mobile station is aware of the timing of the synchronization channel and may start the synchronization code search at an optimum time, paragraph 0027, lines 7-21).

It is desirable to estimate a region from an input signal, wherein the input signal comprises a combined value of I and Q signals and a synchronizer configured to determine an initial synchronization from the region because it can reduce false match and optimize the search procedure (paragraph 0027, lines 20-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of Van Dan Wal et al. with the method of Naden et al. to improve the efficiency.

(3) Regarding claim 25:

Van Der Wal et al. further discloses wherein the estimator is configured to select the region by searching the input signal and selecting a region that has a relatively high power distribution in comparison to the remaining input signal (refer to figure 5, a

number of RSSI peaks 23 occur, these peaks have certain characteristic which make these peaks easy to detect, the mobile station may be provide with special circuitry to detect these peaks , once these peaks are detected, the mobile station is aware of the timing of the synchronization channel and may start the synchronization code search at an optimum time, paragraph 0027, lines 7-21).

(4) Regarding claim 26:

Van Der Wal et al. further discloses wherein the estimator is configured to select the region by comparing a length of the region to a search range (the peak have certain characteristics; duration of 256 chips , interval of n times 48 chips, paragraph 0027, lines 10-12).

(5) Regarding claim 27:

Naden et al. and Van Der Wal et al. fails to disclose the search range comprising 64 chips.

Although Naden et al. and Van Der Wal et al. do not specifically disclose wherein the search range comprises 64 bits, such limitation are merely a matter of design choice and would have been obvious in the method of Van Der Wal et al.. Van Der Wal et al. teaches the search range of 256 chips (these peaks have certain characteristics (duration of 256 chips), paragraph 0027, lines 10-11). The limitation of the search range of 64 chips do not define a patentably distinct invention over Van Der Wal et al. since both invention as a whole are directed to search for a power peak of a define range. Therefore, the search for a search range of 64 chips would have been a matter of obvious design choice to one of ordinary skill in the art.

(6) Regarding claim 28:

Naden et al. discloses wherein the apparatus is at least one of a mobile terminal (mobile transceiver, column 69, line 63 - column 70, line 7).

(7) Regarding claim 29:

Naden et al. discloses wherein the apparatus comprises a mobile communication system (mobile transceiver, column 69, line 63 - column 70, line 7)

(8) Regarding claim 30:

Van Der Wal et al. discloses wherein the communication system is at least one of a Time Divisional-Synchronous Code Division Multiple Access (TD-SCDMA) communication system and a Universal Mobile Telecommunication System-Time division Duplexing (UMTS-TDD) communication system (paragraph 0020).

It is desirable for the communication system is at least one of a Time Divisional-Synchronous Code Division Multiple Access (TD-SCDMA) communication system and a Universal Mobile Telecommunication System-Time division Duplexing (UMTS-TDD) communication system because it is compatible with the existing system.

7. Claims 2, 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561) in view of Van Der Wal et al. (US 2005/0053048 A1) as applied to claim 1 above, and further in view of Snell et al. (US 4,259,740).

(1) Regarding claim 2:

Naden et al. and Van Der Wal et al. disclose all the subject matter as discuss in claim 1; Van Der Wal further discloses estimating a region as a candidate region, the

estimated region having a high power distribution in a power distribution of a added absolute values (refer to figure 5, a number of RSSI peaks 23 occur, these peaks have certain characteristic which make these peaks easy to detect, the mobile station may be provide with special circuitry to detect these peaks, paragraph 0027, lines 7-21).

Naden et al. and Van Der Wal et al. fails to disclose wherein selecting the region comprises respectively accumulating input signals of a channel I and a channel Q and obtaining two absolute values for the channel I and the channel Q; adding the two absolute values.

However, Snell et al. discloses a power calculation method that accumulating input signals of a channel I and a channel Q (accumulator 22 and 23 in figure 3A accumulate the I and Q signal respectively, column 8, lines 22-28) and obtaining two absolute values for the channel I and the channel Q (absolute value ckt. 24 and 25 in figure 3A for obtaining the absolute value of the accumulated I and Q value, column 8, lines 49-53); adding the two absolute values (adder 26 in figure 3A, column 8, lines 53-55).

It is desirable to calculate the power value of a input signal by accumulating input signals of a channel I and a channel Q and obtaining two absolute values for the channel I and the channel Q; adding the two absolute values because it is a simple and inexpensive method. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of Snell et al. in the method of Naden et al .and Van Der Wal et al. to simplify the method.

(2) Regarding claim 4:

Van Der Wal et al further discloses wherein the estimating comprising:

searching the region with the high power distribution from the added absolute values (as disclosed in claim 2 that the output of the adder 26 represent the power of the signal) (Van Der Wal et al. discloses searching the region with high power such as the peak 23 in figure 5, paragraph 0027, lines 8-10);

checking whether a length of the length of the region corresponding to a search range (duration of 256 chips, paragraph 0027, lines 9-11); and

estimating the region as the candidate region if the length of the region with the high power distribution corresponding to the search range (once these peaks are detected, the mobile station may start the synchronization code search, paragraph 0027, lines 9-13).

(3) Regarding claim 5:

Naden et al., Van Dan Wal et al., and Snell et al. fails to disclose the search range comprising 64 chips.

Although Naden et al., Van Dan Wal et al., and Snell et al. do not specifically disclose wherein the search range comprises 64 bits, such limitation are merely a matter of design choice and would have been obvious in the method of Van Der Wal et al.. Van Der Wal et al. teaches the search range of 256 chips (these peaks have certain characteristics (duration of 256 chips), paragraph 0027, lines 10-11). The limitation of the search range of 64 chips do not define a patentably distinct invention over Van Der Wal et al. since both invention as a whole are directed to search for a power peak of a

define range. Therefore, the search for a search range of 64 chips would have been a matter of obvious design choice to one of ordinary skill in the art.

8. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561) in view of Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740).

(1) Regarding claim 8:

Naden et al. discloses a method to obtain synchronization comprising:

obtaining a correlation value of each candidate region (an acquisition mechanism configured to correlate said first sample with the pseudorandom sequence, column 116, lines 21-22), and

judging that synchronization has been obtained in a corresponding candidate region if a specific correlation value is greater than a threshold value (determine whether a correlation value exceeds a predetermined threshold, indicative of coarse synchronization being achieved, column 116, lines 23-29).

Naden et al. fails to (a) a method of respectively accumulating I and Q signals and obtaining two absolute values for I and Q signals; adding the two absolute values; and (b) estimating a candidate region from a power distribution of the added absolute values and selecting a region for an initial synchronization from an input signal; and obtaining an initial synchronization by correlating the selected region and a synchronous code.

With respect to (a), Snell et al. discloses a method of obtaining the received radio signal power of the incoming signal by respectively accumulating I and Q signals (accumulator 22 and 23 in figure 3A accumulate the I and Q signal respectively, column 8, lines 22-28, absolute value ckt. 24 and 25 in figure 3A for obtaining the absolute value of the accumulated I and Q value, column 8, lines 49-53) and obtaining two absolute values for I and Q signals; adding the two absolute values (adder 26 in figure 3A, column 8, lines 53-55).

It is desirable to calculate the power value of an input signal by respectively accumulating I and Q signals and obtaining two absolute values for I and Q signals; adding the two absolute values because it is a simple and inexpensive method. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of Snell et al. in the method of Naden et al .and Van Der Wal et al. to simplify the method.

With respect to (b), Van Der Wal et al. (US 2005/0053048 A1) discloses a method for synchronizing a mobile equipment by scanning a base radio signal during at least one frame for detecting a signal portion with predetermined characteristics and deriving time information associated with the CDMA system from the signal portion and start synchronization step of the mobile equipment using the timing information (it is well known in the art that synchronization process will comprise a correlation between the input signal and a synchronization code), in which the signal portion is the received power of the base station signal as the received by the mobile equipment such as the received signal strength indicator (RSSI) (claim 1 line 11-18 and claim 2).

It is desirable to select a region for an initial synchronization from an input signal and obtaining an initial synchronization by correlating the selected region and a synchronous code because it provides a more efficient synchronization method (paragraph 0003). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of Van Dan Wal et al. with the method of Naden et al. to improve the efficiency.

(2) Regarding claim 9:

Van Der Wal et al further discloses wherein the estimating comprising:

searching the region with the high power distribution from the added absolute values of one frame (as disclosed in claim 8 that the output of the adder 26 of Snell et al. represent the power of the signal) (Van Der Wal et al. discloses searching the region with high power such as the peak 23 in figure 5, paragraph 0027, lines 8-10; scanning a base radio signal during at least one frame for detecting a signal portion with predetermined characteristics, claim 1, lines 11-13);

checking whether a length of the length of the region corresponding to a search range (duration of 256 chips, paragraph 0027, lines 9-11); and

estimating the region as the candidate region if the length of the region with the high power distribution corresponding to the search range (once these peaks are detected, the mobile station may start the synchronization code search, paragraph 0027, lines 9-13).

(3) Regarding claim 10:

Naden et al., Van Der Wal et al., and Snell et al. fails to disclose the search range comprising 64 chips.

Although Naden et al., Van Der Wal et al., and Snell et al. do not specifically disclose wherein the search range comprises 64 bits, such limitation are merely a matter of design choice and would have been obvious in the method of Van Der Wal et al.. Van Der Wal et al. teaches the search range of 256 chips (these peaks have certain characteristics (duration of 256 chips), paragraph 0027, lines 10-11). The limitation of the search range of 64 chips do not define a patentably distinct invention over Van Der Wal et al. since both invention as a whole are directed to search for a power peak of a define range. Therefore, the search for a search range of 64 chips would have been a matter of obvious design choice to one of ordinary skill in the art.

9. Claims 12, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 7,280,586 B2) in view of Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740).

(1) Regarding claim 12:

Tanaka discloses in figure 2 a synchronization detection section that obtains an initial synchronization by correlating a received signal and a synchronization code (a spreading code is sent from the code generator 3 to the matched filter 2 and correlated with the received signal, a result of correlation between the received signal and the spreading code is obtain from the matched filter 2 (column 8, lines 1-9).

Tanaka fails to discloses (a) a first and second accumulation buffers to respectively accumulate I and Q signals; first and second absolute value calculators to obtain an absolute value from outputs of the first and second accumulation buffers; an adder to add output of he first and second absolute values calculations; and (b) an estimator to estimate a candidate region for initial synchronization from the added absolute values.

With respect to (a), Snell et al. discloses a apparatus of obtaining the received radio signal power of the incoming signal by respectively accumulating I and Q signals (accumulator 22 and 23 in figure 3A accumulate the I and Q signal respectively, column 8, lines 22-28, absolute value ckt. 24 and 25 in figure 3A for obtaining the absolute value of the accumulated I and Q value, column 8, lines 49-53) and obtaining two absolute values for I and Q signals; adding the two absolute values (adder 26 in figure 3A, column 8, lines 53-55).

It is desirable to calculate the power value of an input signal by respectively accumulating I and Q signals and obtaining two absolute values for I and Q signals; adding the two absolute values because it is a simple and inexpensive method to obtain the received signal power. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the apparatus of Snell et al. in the apparatus of Tanaka to simplify the apparatus.

With respect to (b) Van Der Wal et al. discloses an estimator (processing means 7 in figure 1, paragraph 0029, lines 8-11) to estimate a candidate region for initial synchronization from the added absolute values and synchronization search from the

estimated region (the examiner interpret the added absolute values as the received signal power) (in figure 5 a number of peaks 23 occur, these peaks have certain characteristics which make these peaks easy to detect, once these peaks are detected, the mobile station is aware of the timing of synchronization and may start the synchronization code search at an optimum time, paragraph 0027, lines 8-1).

It is desirable to have an estimator to estimate a candidate region for initial synchronization from the added absolute values because it provides a more efficient synchronization method (paragraph 0003). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of Van Dan Wal et al. with the apparatus of Tanaka and Snell et al. improve the efficiency of the synchronization method.

(2) Regarding claim 14:

Van Der Wal et al. further discloses wherein the estimator is configured to search a region having a high power distribution form an absolute value of one frame and to estimate a region with a length of a power distribution corresponding to a search range as a candidate region (in figure 5 a number of received signal strength indicator (RSSI) peaks 23 of the received radio signal occur, these peaks have certain characteristics which make these peaks easy to detect (256 chips),once these peaks are detected, the mobile station is aware of the timing of synchronization and may start the synchronization code search at an optimum time, paragraph 0027, lines 8-1, scanning a base radio signal during at least one frame, claim 1, lines 11-13).

(3) Regarding claim 15:

Van Der Wal et al., and Snell et al. and Tanaka fail to disclose the search range comprising 64 chips.

Although Van Der Wal et al., Tanaka and Snell et al. do not specifically disclose wherein the search range comprises 64 bits, such limitation are merely a matter of design choice and would have been obvious in the method of Van Der Wal et al.. Van Der Wal et al. teaches the search range of 256 chips (these peaks have certain characteristics (duration of 256 chips), paragraph 0027, lines 10-11). The limitation of the search range of 64 chips do not define a patentably distinct invention over Van Der Wal et al. since both invention as a whole are directed to search for a power peak of a define range. Therefore, the search for a search range of 64 chips would have been a matter of obvious design choice to one of ordinary skill in the art.

(4) Regarding claim 16:

Van Der Wal disclosed to start the synchronization search at an optimum time but fails to discloses a synchronization searching unit is configured to obtain a correlation value by correlating the received signal and a synchronization code, and if a correlation value is greater than a threshold value, the synchronization searching unit is configured to judge that synchronization has been obtained in the corresponding candidate region.

Tanaka further discloses wherein the synchronization searching unit (synchronization detection section in figure 2) is configured to obtain a correlation value by correlating the received signal and a synchronization code (correlation of the received signal and the synchronization code in matched filter 2, column 8, lines 3-9),

and if a correlation value is greater than a threshold value, the synchronization searching unit is configured to judge that synchronization has been obtained in the corresponding candidate region (when a peak exceeding the threshold is detected, it is assumed that the peak means that the received signal has been synchronized with the spreading code, column 8, line67 – column 9, line 2).

(5) Regarding claim 17:

Tanaka discloses a synchronization method and apparatus, it would have been obvious to one of ordinary skill in the art at the time of invention to use the synchronization apparatus on a base station.

(6) Regarding claims 18 and 19:

Tanaka discloses that the apparatus comprises a mobile terminal (GPS receiver, column 1, lines 14-19).

(7) Regarding claim 20:

Van Der Wal et al. discloses wherein the communication system is at least one of a Time Divisional-Synchronous Code Division Multiple Access (TD-SCDMA) communication system and a Universal Mobile Telecommunication System-Time division Duplexing (UMTS-TDD) communication system (paragraph 0020).

It is desirable for the communication system is at least one of a Time Divisional-Synchronous Code Division Multiple Access (TD-SCDMA) communication system and a Universal Mobile Telecommunication System-Time division Duplexing (UMTS-TDD) communication system because it is compatible with the existing system.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561) in view of Van Der Wal et al. (US 2005/0053048 A1) as applied to claim 21 above, and further in view of Snell et al. (US 4,259,740).

Naden et al. and Van Der Wal et al. disclose all the subject matter as discussed in claim 21 except the apparatus further comprising accumulation buffers and absolute value calculators configured to receive the I and Q signals and to generate absolute values for each of the I and Q signals; and an adder configured to add the absolute values of the I and Q signals to generate the combined values of the I and Q signals to convey the combined value to the estimator.

However, Snell et al. discloses an apparatus to obtain the received signal power comprising accumulation buffers and absolute value calculators configured to receive the I and Q signals and to generate absolute values for each of the I and Q signals(accumulator 22 and 23 in figure 3A accumulate the I and Q signal respectively, column 8, lines 22-28) (absolute value ckt. 24 and 25 in figure 3A for obtaining the absolute value of the accumulated I and Q value, column 8, lines 49-53); and an adder configured to add the absolute values of the I and Q signals to generate the combined values of the I and Q signals to convey the combined value to the estimator (adder 26 in figure 3A, column 8, lines 53-55).

It is desirable to calculate the power value of a input signal by accumulating input signals of a channel I and a channel Q and obtaining two absolute values for the channel I and the channel Q; adding the two absolute values because it is a simple and inexpensive method. Therefore, it would have been obvious to one of ordinary skill in

the art at the time of invention to employ the method of Snell et al. in the apparatus of Naden et al .and Van Der Wal et al. to simplify the method.

11. Claims 3, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561), Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740) as applied to claims 2 and 22 above, and further in view of Thomson (US 5,442,579).

Naden et al., Van Der Wal et al. and Snell et al. disclose all the subject matter as discussed in claim 2 and 22 except wherein accumulating is performed by a circulation buffer.

However, Thomson discloses using a circular buffer as an accumulation buffer (figure 6A, column 5, lines 34-35).

It is desirable to using a circular buffer as an accumulation buffer because it can improve the efficiency of the system (column 2, lines 64-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Thomson in the method and apparatus Naden et al., Van Der Wal et al. and Snell et al. to improve the efficiency of the system.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 7,280,586 B2),Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740) as applied to claim 12 above, and further in view of Thomson (US 5,442,579).

Tanaka, Van Der Wal et al. and Snell et al. disclose all the subject matter as discussed in claim 12 except wherein each of the first and second accumulation buffers comprising a circulation buffer.

However, Thomson discloses using a circular buffer as an accumulation buffer (figure 6A, column 5, lines 34-35).

It is desirable to using a circular buffer as an accumulation buffer because it can improve the efficiency of the system (column 2, lines 64-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Thomson in the method and apparatus Tanaka, Van Der Wal et al. and Snell et al. to improve the efficiency of the system.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naden et al. (US 5,999,561), Van Der Wal et al. (US 2005/0053048 A1), Snell et al. (US 4,259,740), and Thomson (US 5,442,579) as applied to claim 23 above, and further in view of Oshima (US 2002/0080285 A1).

Naden et al., Van Der Wal et al., Snell et al. and Thomson disclose all the subject matter as discussed in claim 23 and wherein the accumulation buffers are configured to accumulate a plurality of I and Q signals, respectively. Naden et al., Van Der Wal et al., Snell et al. and Thomson fail to disclose the I and Q samples are oversampled.

However, Oshima discloses an oversampler (oversampler 523 in figure 32) that oversample the input signal by 2 times (paragraph 0328, lines 19-20).

It is desirable to oversample the input signal because it can provide a more detail and higher resolution of the sampled data. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Oshima in the apparatus of Naden et al., Van Der Wal et al., Snell et al. and Thomson to improve the accuracy of the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Siu M Lee/
Examiner, Art Unit 2611
3/26/2008

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611